Attention Deficit Hyperactivity Disorder in Offenders

By Patricia Westmoreland
Attention Deficit Hyperactivity Disorder is a neurodevelopmental disorder whose cardinal symptoms are inattention, impulsivity and hyperactivity. The current diagnostic criteria for ADHD note that at least six symptoms in the categories of inattention, impulsivity and hyperactivity must be present for six months or longer. The symptoms must be present before age 7, and at least six symptoms in the categories of inattention, impulsivity and hyperactivity must have been ruled out. The symptoms of ADHD are indicative of impairment in the brain’s ability to process and organize information so as to respond appropriately to the external environment.

Both frontal and subcortical areas of the brain are thought to be involved in producing the symptoms. Imaging studies using magnetic resonance imaging (MRI) have found abnormalities in the structure and function of the brain in these areas. A study that used MRI to measure the volumes of brain structures found that, in comparison to children without ADHD, children with ADHD had smaller volumes of the frontal cortex, subcortical region and cerebellum; these differences persisted as the children grew older. In addition, studies of brain function (using Positron Emission Tomography, PET, and functional MRI) are consistent in showing malfunctions in the frontal and subcortical regions in patients with ADHD. An imbalance in dopamine and noradrenaline are among the neurochemical abnormalities that may be responsible for these abnormalities in function. Medications for ADHD are thought to work by correcting abnormalities in these pathways.

Risk and Prevalence of ADHD

The risk for ADHD is increased two- to eight-fold in parents of children with ADHD and siblings of children with ADHD. In addition to genetic influences, environmental factors are thought to play a role in the development of ADHD. Risk factors include maternal smoking and alcohol consumption during pregnancy, low birth weight, severe psychological stressors during pregnancy, and obstetrical complications in pregnancy and delivery.

ADHD is the most commonly diagnosed behavioral disorder in youth, with an estimated prevalence of 7 percent, affecting boys three times more often than girls. The disorder is persistent for many people — only 10 percent of children with ADHD achieve full remission in adulthood, while 30 to 70 percent continue to have significant symptoms. The estimated prevalence of ADHD in adults is 4.4. It has been reported that the rates of hyperactivity and impulsivity decline with age and that inattention is the most common persistent symptom in adults, although motor hyperactivity and impulsivity often persist. Additional symptoms include disorganization and problems with controlling emotions. Those patients whose ADHD persists into adulthood are less likely to reach their academic potential, are more likely to have vocational and marital problems, and are at risk for a greater number of (and more serious) motor vehicle accidents. Comorbidity has been reported with other mental illnesses, including mood, anxiety and substance use disorders. Risk of suicide is also increased.

Criminality and ADHD

Childhood ADHD is a stronger predictor than conduct disorder of adult disruptive behavior, arrests, jail stays and felony convictions. Persistence of ADHD into early adulthood is associated with truancy, aggression and delinquency, as well as the development of antisocial and other personality disorders. Predictors of criminality in ADHD include multiple juvenile arrests, arrests for felony crimes in adolescence and incarceration. Recent studies of ADHD in the prison population have shown that 20 percent to 40 percent of inmates meet criteria for adult ADHD, and perhaps as many as an additional 16 percent have subthreshold symptoms.

Study of ADHD in Iowa Department of Corrections Reception Offenders

In order to assess the prevalence of ADHD in offenders newly admitted to the Iowa Department of Corrections (IDOC), clinical characteristics, psychiatric comorbidity and quality of life for these offenders were studied. Subjects were randomly selected from the list of incoming offenders admitted to the Iowa Medical and Classification Center (IMCC), located in Oakdale, Iowa. IMCC serves as a reception facility for IDOC. New offenders are admitted for an intake health screening, institutional assignment and initiation of the central offender record. The study did not include offenders on special supervision (e.g., violent offenders). Interviews were conducted at IMCC, and informed consent was obtained. Offenders were administered the MINI-PLUS, a fully structured instrument to assess DSM-IV psychiatric disorders and suicide risk. Additionally, the Medical Outcome Study Short Form-36 Health Survey (SF-36) was used to assess physical and mental dimensions of functioning.

A total of 319 offenders completed the assessments, and of these, 68 (21 percent) met criteria for ADHD. Sixty were men and most were Caucasian. The percentage of women with adult ADHD (14 percent) was lower than that reported for men (23 percent), but the difference was not statistically significant. In addition, there were no significant differences between offenders with and without ADHD with respect to age, education, marital status or type of current offense. ADHD was strongly related to suicide risk, with a more than two-fold increase in suicide risk in offenders with ADHD. The most commonly reported ADHD symptoms were spending money impulsively, impulsivity in other areas, distractability and the feeling of “being in a fog.”

There was a significant difference in the prevalence of mood, anxiety, psychotic and somatoform disorders between offenders with ADHD versus those without it. In particular, patients with ADHD were significantly more likely to have mood, anxiety, psychotic and somatoform disorders. There were no significant differences between the groups with respect to substance use and eating disorders. Childhood conduct disorder was more common in adults with ADHD; 31 percent of offenders with ADHD, compared with 14 percent of offenders without ADHD, had a history of childhood conduct disorder (p < 0.001). In addition, 54 percent of offenders with ADHD, versus 30 percent of
offenders without ADHD, met criteria for antisocial personality disorder, and 52 percent of offenders with ADHD, versus 23 percent of those without ADHD, met criteria for borderline personality disorder. Measures on the SF-36 scale indicated poorer functioning with regard to mental health in the ADHD group. However, SF-36 scores of individuals with ADHD were not significantly worse than those without ADHD in relation to physical functioning, vitality, bodily pain and general health.

Results and Implications for Treatment

The rate of ADHD in this study is substantially higher than the 4.4 percent rate of ADHD in the general population.19 The finding that more women than expected met criteria for ADHD is a reminder that in prison settings the disorder should be included in the differential diagnosis when female offenders present with inattention, impulsivity and hyperactivity.

The reported rate of ADHD in prison settings has varied depending on the sample and assessment method, as well as how stringently the diagnostic criteria are applied.20 The rate determined by this study is toward the lower end of the range. Other studies have reported rates varying between 22 and 45 percent. The differences in these rates may be ascribed to differences in the criteria used to make the diagnosis.21 In addition, the rate of ADHD in this study was lower than that found in other studies of ADHD in prison, most likely because it excluded offenders in groups where a high prevalence of ADHD may have been expected, e.g., violent offenders and those in segregation.

The current study was similar to others in finding comorbidity between ADHD and other mental disorders. Offenders with ADHD had high rates of psychiatric comorbidity for mood, anxiety and somatoform disorders. The pattern mirrors that seen in clinical and community samples, except that substance use disorders were not increased. An association between adult ADHD and other Axis 1 disorders has also been noted in other published studies. As many as one-third of patients with ADHD have four other mental health diagnoses in addition to ADHD.22 Comorbidity between ADHD and substance use disorders has been noted in studies of ADHD in the general population.23 The fact that the current study did not find a significantly greater prevalence of substance use disorders in offenders with or without ADHD likely speaks to the fact that a very high percentage of offenders in general have substance use problems.24

Comorbid borderline and antisocial personality disorders were significantly more common in offenders with ADHD. Prior studies have observed an increased risk for antisocial personality disorder in adults in the general population with ADHD.25 Borderline personality disorder is also more common among young adults with ADHD.26

The lower SF-36 scale scores for the ADHD group in this study indicate significantly worse self-reported functioning in the areas of mental and emotional health as well as a decreased ability of these individuals to function in society. Other studies in the general population have also noted increased psychological distress in adults with ADHD, as well as problems with social and vocational demands.27

Studies in the prison population have noted a history of childhood ADHD in self mutilators, a high prevalence of ADHD amongst suicide attempters and ideators, and ADHD as predictors of suicide attempts in incarcerated youths. The finding that the ADHD group was considered at risk for suicide, based on the MINI-Plus, has been recognized in earlier studies of ADHD in the general population.28 The current study noted that offenders with ADHD have more than twice the risk of suicide. ADHD predisposes individuals to suicide because of the impulsivity inherent to ADHD and the fact that ADHD patients have a greater risk of comorbid psychiatric disorders.

There are several limitations to this study. The sample consisted of offenders newly admitted to the general population units of a reception site at a state prison, hence the results may not generalize to incarcerated offenders as a whole. There were relatively few women in the study, so caution should be used in attempting to generalize the findings to this population. There is some evidence that the MINI-Plus may overdiagnose some disorders such as psychotic disorders. In using the MINI-Plus for ADHD, it is important to note that the interviewer only queries adult ADHD symptoms if the subject endorses six of 10 possible childhood symptoms of ADHD with some of the symptoms occurring prior to age 7. Consequently, only severe chronic cases are likely to be recorded as having ADHD persisting in adults. Lastly, the ADHD diagnoses were based on a single instrument — the MINI-Plus — and there was no effort to interview family members or other informants who could have provided collateral information.

Approach to Treatment at IDOC

The approach to treating ADHD in Iowa involves the following:

- Patients must meet DSM-IV-TR criteria for ADHD.
- Other diagnoses that may better explain the symptoms should be ruled out.
- Medical illnesses that may mimic ADHD should also be ruled out.
- Patients must have current symptoms that interfere with functioning in the classroom or at work and/or problems interacting with other offenders/staff.
- Prior medical records should be obtained whenever possible.
- Nonmedication treatment should be used, including psychotherapy; receiving extra help from staff, such as tutors and teachers; following sleep hygiene protocols; minimizing caffeine intake and abstaining from illegal drugs.
- Nonstimulant treatments (bupropion and atomoxetine) are each used for at least six weeks at a maximum dose unless there is concrete evidence from local psychiatry notes that the patient has reacted adversely to these medications. Fluoxetine, imipramine and clonidine may be also be considered.
- Treatment with stimulants: liquid methylphenidate is used only if adequate trials of nonstimulant medications have failed and ongoing use of nonmedication treatment modalities can be documented.
Conclusions

ADHD is common in offenders and should not be overlooked. ADHD in offenders is associated with worse mental health and social functioning, psychiatric comorbidity, and risk of suicide. Offenders with ADHD are likely to require more intensive mental health services. However, because it is often difficult to monitor symptoms of ADHD during confinement and because many of the medications used to treat ADHD have abuse potential, there may be a reluctance to treat this disorder in prison. Despite these difficulties, the findings of this study should prompt discussions regarding the appropriate treatment of ADHD in correctional settings.

ENDNOTES


23 Shaffer, D. et al. 1996.


26 Murphy, K. and R.A. Barkley. 1996.


Plattner, B. et al. 2007.

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